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performing character recognition of said stored touch screen data as said character; and

in case that another touch screen data is generated within a predetermined waiting threshold time, stopping the above operation and adding both the previously generated touch screen data and the newly generated touch screen data together as one character to thereby perform the character recognition.

IN THE CLAIMS:

Submitted herewith are replacement drawings for Figures 2-4.

REMARKS

The application has been reviewed in light of the Office Action dated June 12, 2001. Claims 1-6 are pending in this application. Each pending independent claim (Claims numbered 1, 3 and 5) has been amended. It is respectfully submitted that no new matter has been added by these amendments. Entry of the amendments and consideration of the foregoing amendments and the following remarks is respectfully requested.

In the Office Action, the claims were rejected as follows: Claims 3 and 4 were rejected under 35 U.S.C. §102(e) as being anticipated by Kuzunuki et al. (U.S. Patent No. 5,917,475); Claims 5 and 6 were rejected under 35 U.S.C. §102(e) as being anticipated by Van Kleeck (U.S. Patent No. 6,008,799); and Claims 1 and 2 were rejected under 35 U.S.C. §103(a) as being unpatentable over Van Kleeck. Claims 1 and 3 also were objected to.

Objections:

The Office Action includes a notice of an objection to the quality of Figures 2-4. Submitted herewith are higher quality versions of the drawings of Figures 2-4, which are believed to overcome the objection.



Claim Objections:

Paragraph 1 of the Office Action objects to Claims 1 and 3. It is submitted that the claims are sufficiently clear. These claims have, however, been amended for form, and not for reasons related to patentability, in order to further the prosecution.

35 U.S.C. §102(e) Rejection:

Paragraphs 2-8 of the Office Action rejected Claims 3, 4, 5 and 6 pursuant to 35 U.S.C. §102(e). Amendments have been made to independent Claims 3 and 5, which are believed to overcome the rejection.

Paragraphs 3-5 of the Office Action rejected Claims 3 and 4 pursuant to 35 U.S.C. §102(e) as by Kuzunuki et al. (U.S. Patent No. 5,917,475). Contrary to the generalization that the reference teaches “performing character recognition of said stored data at each time a stroke is entered” (Office Action, paragraph 4), Kuzunuki et al. do not teach character recognition each time each stroke is input. Rather, Kuzunuki et al. delay commencement of the character recognition process until either: 1) the user enters data in an area of the screen that is area outside the screen region allocated for entry of cursive characters, indicating the cessation of entry of any pending character (see step C410 of Fig. 29); or 2) expiration of a predetermined time (monitored by the time-out timer) since the user’s pen (i.e., stylus) last contacted the screen region allocated for entry of cursive characters (step C460 of Fig. 29 and step A20 of Fig. 25). Kuzunuki et al. perform character recognition only at the distinct intervals that begin at the running of its time-out timer (Col. 9, line 53, “The time-out processing F is used to determine the start timing of recognition,” steps A20 and A30 of Fig. 25, and step F of Fig. 44). Kuzunuki et al.’s processing step (step C440 in Fig. 29) accordingly places character stroke data in a stroke buffer, awaiting the start of processing at the next discrete interval.

Kuzunuki et al. do not teach or disclose a system or device that performs a character recognition each time each stroke is input. Rather, the relevant portion of Kuzunuki et

al. discloses a character recognition process that begins after expiration of a time out period. As made more clear by the housekeeping amendment to Claim 3, the claimed character recognition starts each time each stroke is input, regardless of the status of the predetermined waiting threshold time. Importantly, the claimed device does not wait until the completion of all strokes before commencing its character recognition process, as do Kuzunuki et al. The predetermined waiting threshold time serves the distinct purpose of cutting off entry of additional character strokes. Prior to expiration of the predetermined waiting threshold time, an additional stroke may be added to the previously entered stroke for purposes of character recognition. Unlike Kuzunuki et al., the pending claims do not use its threshold time to trigger commencement of character recognition.

Based on the amendment to Claim 3, and the above arguments, it is respectfully submitted that amended Claim 3 is patentably distinct over Kuzunuki et al., and is in condition for allowance. Claim 4, which depends upon Claim 3, is believed to be similarly allowable.

Paragraphs 6-8 of the Office Action rejected Claims 5 and 6 pursuant to 35 U.S.C. §102(e) as anticipated by Van Kleeck (U.S. Patent No. 6,008,799). It is respectfully submitted that Van Kleeck is not applicable to the claimed subject matter for reasons including Van Kleeck's inapplicability to character recognition. The teaching of Van Kleeck is limited to selection of characters from among those displayed on a touch screen, not to character recognition. Further, the teaching of Van Kleeck entirely depends upon its touch screen being able to display all available characters. See, e.g., the 26 letters of the Arabic alphabet, Col. 3, line 21; Col. 4, line 16; Col. 5, line 17; and, item 1504 of Fig. 15A.

Additionally, Van Kleeck is wholly unable to distinguish between ideographic characters that share common base strokes. In contrast, the claimed method of claim 5 recites a stopping of the character recognition process and adding the newly received "another touch screen data" to the originally received touch screen data, and as such both recognizes individual characters and also differentiates a first character that is, for example, completely

formed by two strokes from a second character that is formed by those same two strokes and one or more additional strokes. To state it another way, the claimed device will not accept a two-stroke character as being complete when the user continues to add, within a predetermined time, an additional stroke or strokes. Rather, the claimed invention will recognize the more complex ideographic language character, despite the fact that it shares its foundation with the original two-stroke character. Further, the claimed invention will recognize a character regardless of whether a combination of characters comprises a recognized word.

Not only is Van Kleeck wholly unable to function in the claimed manner, the threshold waiting time of Van Kleeck (i.e., timer button 219) cited by the Examiner does no more than display elapsed time (see Col. 5, lines 54-56), and wholly differs from the claimed predetermined waiting threshold time.

Thus, amended Claim 5 is believed to be patentable over Van Kleeck, and to be in condition for allowance. Claim 6, which depends upon claim 5, is believed similarly allowable. Moreover, the method of claim 6 will display a character without further interaction or input from the user, a step required by Van Kleeck (Col. 8, line 49 et seq.).

35 U.S.C. §103 Rejection:

Paragraphs 9-12 of the Office Action rejected Claims 1 and 2 pursuant to 35 U.S.C. §103(a) as being unpatentable over Van Kleeck (U.S. Patent No. 6,008,799). As discussed above, Van Kleeck does not disclose a character recognition device, and merely allows for selection from among characters appearing on its touch screen display. The processing unit and operating system cited by the Examiner simply disclose a technique for selection of text or characters that are displayed on the screen, and do not teach or suggest character recognition. Moreover, Van Kleeck does not teach or suggest a system that can be used for recognition of characters entered by the user via a single or combination of strokes.

Further, the purpose of the claimed predetermined waiting threshold time is to ensure that an additional stroke need not be added to the on-going character recognition process. There is no suggestion to combine a power saving scheme (Office Action, paragraph 11) with a predetermined waiting threshold time used in the character recognition method. For example, character recognition is often completed prior to the expiration of the predetermined waiting threshold time, which one of ordinary skill in the art who seeks to implement an additional energy savings feature would recognize as making the predetermined waiting threshold time as not a useful point to initiate an efficient power saving routine.

Claim 1 is believed to be patentable over Van Kleeck, and is believed to be in condition for allowance. Claim 2, which depends upon claim 1, is also believed to be similarly allowable. Moreover, unlike the system of Van Kleeck, following expiration of the predetermined waiting threshold time, the method of Claim 6 outputs the character code without, as necessary for Van Kleeck, additional user action or input.

CONCLUSION

Entry of the foregoing amendments and allowance of all pending claims are respectfully requested. Should the Examiner feel that a telephone conference or personal interview will facilitate resolution of any remaining matters, he is respectfully requested to contact the undersigned at the number indicated below. A prompt action on the merits is earnestly solicited.

Respectfully submitted,



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AMENDED CLAIM(S) PRESENTED IN ACCORDANCE WITH 37 C.F.R. §1.121

Rewritten claims marked up to show all the changes relative to the previous version:

-- 1. (Amended) A character recognition device for recognizing a character [characters] input through a touch screen, comprising:

 a touch screen data recorder for storing touch screen data generated from [an] input of a stroke, wherein said [a] character is recognized in response to one or more of said strokes;

 a timer for counting a predetermined waiting threshold time when there is no touch screen data generated; and

 a character recognition processor for performing character recognition of said stored touch screen data as [a] said character, wherein a freshly stored touch screen data generated before completion of counting the predetermined waiting threshold time is added to the previous touch screen data to complete said character.

-- 3. (Amended) A character recognition device for recognizing a character [characters] input through a touch screen comprising:

 a touch screen data recorder for storing touch screen data generated from [an] input of a stroke, wherein said [a] character is recognized in response to one or more of said strokes;

 a timer for counting a predetermined waiting threshold time when there is no touch screen data generated; and

 a character recognition processor for performing character recognition of the stored touch screen data at each time when [a] each stroke is input through said touch screen, wherein all the touch screen data are recognized as a single character when said predetermined waiting threshold time is completely counted.

-- 5. (Amended) A character recognition method for recognizing a character [characters] input through a touch screen, comprising the steps of:

storing touch screen data generated from an input of said [a] character;

performing character recognition of said stored touch screen data as [a] said character; and

in case that another touch screen data is generated within a predetermined waiting threshold time, stopping the above operation and adding both the previously generated touch screen data and the newly generated touch screen data together as one character to thereby perform the character recognition.